



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
2002/00440

July 15, 2002

Mr. Lawrence C. Evans
Corps of Engineers - Portland District
ATTN: CENWP-CO-GP
P.O. Box 2870
Portland, Oregon 97208-2870

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation on the Effects of the South Yamhill River - Three
Rivers Highway Bank Erosion Repair, Yamhill County, Oregon (Corps No. 2001-
00984).

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by the National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Three Rivers Highway Bank Erosion Repair Project in Yamhill County, Oregon. In this Opinion, NOAA Fisheries concluded that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*), or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this Opinion, however, a federal court vacated the rule designating critical habitat for the evolutionarily significant units considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need for timely issuance of this Opinion, our critical habitat analysis has not been removed from this Opinion.



This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Tom Loynes of my staff in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

for Michael R. Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary - ODOT
Greg Apke - ODOT
Nick Testa - ODOT
Randy Reeve - ODFW

BIOLOGICAL OPINION

Refer to: **2002/00440**

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1. ENDANGERED SPECIES ACT

1.1 Background

On February 12, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a request from the U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation for the Three Rivers Highway South Yamhill River Bank Stabilization Repair Project (Corps No. 2001-00984). The proposed action is to repair an eroding bank along the South Yamhill River adjacent to Three Rivers Highway. The South Yamhill River is a tributary to the Yamhill River, in southwestern Yamhill County, Oregon. The project site is on the Three Rivers Highway (Hwy 22) near the Grand Ronde Agency. The project applicant, the Oregon Department of Transportation (ODOT), proposes to permanently stabilize the site with a combination of riprap, vegetation and large woody debris.

In the February 2002 letter, the COE determined that the proposed action was likely to adversely affect Upper Willamette River (*Oncorhynchus mykiss*) steelhead. The Upper Willamette River (UWR) steelhead was listed as threatened under the ESA on March 25, 1999 (64 FR 14517). Critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

This Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this Opinion, however, a federal court vacated the rule designating critical habitat for the evolutionarily significant units considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need for timely issuance of this Opinion, our critical habitat analysis has not been removed from this Opinion.

The project site is also within the range of Upper Willamette River spring chinook salmon (*O. tshawytscha*), which were listed as threatened under the ESA on March 24, 1999 (64 FR 14517). However, the South Yamhill River watershed is not known to support chinook salmon.

This biological opinion (Opinion) is based on the information presented in the biological report (BR) and the result of the consultation process. The consultation process has involved site visits and meetings, as well as correspondence and communications to obtain additional information and clarify the BR. Modifications to the proposal to reduce impacts to the indicated species were discussed, and are included in the proposal. These modifications include revisions to the original design, including the addition of rootwads associated with riprap, and planting more shrubs and trees to restore the site.

The objective of this Opinion is to determine whether the action to stabilize the site on the South Yamhill River is likely to jeopardize the continued existence of the UWR steelhead or UWR chinook, or destroy or adversely modify critical habitat.

1.2 Proposed Actions

1.2.1 Bank Stabilization

ODOT proposes a repair at the project site that is intended to stabilize the streambank during future high-water events. The design uses riprap, large woody debris and plantings to stabilize the site. The project would be completed prior to the end of the in-water work window for 2002. The Oregon Department of Fish and Wildlife (ODFW) preferred in-water work period for the South Yamhill River is from July 1st through October 15th. In-water work activities include: isolation of the work area, removal of fish, construction of a toe trench and placement of riprap, placement of large woody debris, and planting of native plants and vegetation.

A track-hoe excavator would work from the bank in order to construct the toe trench. The toe trench would be excavated for a distance of approximately 30 meters (m) roughly parallel to the highway. The trench and top of bank would be constructed irregularly to create backwater areas with varying currents that would provide refugia for salmonids during high-water events. The toe trench excavation would require the removal of approximately 46 m³ of material. A total of approximately 92 m³ of class 1000 riprap would be used for fill on the project.

A minimum of four Douglas fir logs [30 - 60 centimeters (cm) in diameter] with root wads attached would be associated with the newly constructed bank and the stream channel. The majority of the log would be buried in the bank and under riprap to hold it in place during high flow events. The root wads would extend four feet or more into the stream channel from the streambank, below the ordinary high water elevation to provide bank stabilization, cover, and low velocity refuge areas.

1.2.2 Work Area Isolation

The first phase of construction would be isolation of the work area, removal of fish by an ODFW biologist or other permitted biologist, and de-watering the work area within the wetted channel. Fish removal would occur prior to any other construction activities to minimize impacts to salmonids. The preferred method to isolate and de-water the work area would be to install two parallel sandbag dams lined with plastic sheeting across the stream channel upstream of the work site, or around the area to be isolated. Water seeping through the primary dam and contained by the secondary dam would be pumped to an area upstream of the dam, to a settling pond, or other approved location. Removal of the fish from the isolated work area would be with the approval of the ODOT Engineer and under the supervision of an ODOT/ODFW biologist. A pipe would be installed in the primary dam conveying stream water downstream of the work site. The pipe diameter would be sufficient to carry the necessary water capacity. Sandbags would be placed at

the pipe outfall for erosion control, when necessary. The pipe will allow downstream passage but not upstream passage.

1.2.3 Vegetation Planting

After the placement of the rock, willow cuttings would be planted into the interstitial spaces of the rocks and surrounding river banks to gain riparian function over time. Class 50 riprap would be placed behind the larger stones to "lock" the boulders in place, and once the repairs are finished, topsoil will be placed on the upper section of the repair so that the seeding and mulching of the site can occur.

Live willow stakes would be planted within the project area to facilitate vegetation recovery where the rock is placed. These willow cuttings would be incorporated into the interstitial spaces of the riprap at a random spacing, and willow cuttings planted in the river's bank will be arranged in tiers of 1-3 rows at 1.0 m centers. Likewise, willow stakes would be planted south of the road in a wetland/off-channel area to increase riparian cover and shade on the river. Cuttings planted in the wetland area will be randomly spaced to adequately cover the area. The willows would be collected locally and restricted to shrub-growth forms. Approximately 250-300 willow stakes will be planted on-site during the winter prior to bud-break.

A survivorship rate of 70% one-year post construction will be considered the minimum success rate for this project. Monitoring of riparian vegetation will occur during actual planting to ensure adequate coverage, and again one year following construction to ensure the 70% establishment of cuttings. Monitoring data will be collected to determine if planting has succeeded or fallen short of its stated objectives. Upon completion of the monitoring, the overall success of the design will be evaluated and this information submitted to the USACE as the action agency.

1.2.4 Large Wood Placement

Large wood (LW) will be placed in the river to facilitate habitat formation for fish at three places within the project area. The configuration of the LW will be decided on-site and placed to gain the best habitat value and hydraulic stability in the river. Placement of the LW will be done from the road surface via an excavator. The placement of the logs with rootwads will be done in conjunction with the rock placement, during the in-water work period of July 1st to October 15th. LW will consist of conifer butt-logs of a minimum 30 cm diameter with the roots attached, placed in locations where creek/floodplain interaction is occurring. The size of LW will vary, however, pieces 5-6 m or 1.5 times the width of the channel in length will be sought for use on site. In total, ODOT Environmental and Geo/Hydro Section have agreed that roughly 3-5 pieces of LW can be placed on-site within the channel in areas where they will not pose a hydraulic threat to the road. This LW placement is in addition to the four logs with rootwads attached associated with riprap placement.

1.3 Biological Information and Critical Habitat

Although there are currently limited data to assess population numbers or trends, NOAA Fisheries believes that steelhead stocks comprising the UWR steelhead Evolutionarily Significant Unit (ESU) are depressed relative to past abundance. The status and relevant biological information concerning UWR steelhead are well described in the proposed and final rules from the Federal Register (63 FR 11798, March 10, 1998; and 64 FR 14517, March 25, 1999, respectively), and Busby *et al.* (1995,1996).

UWR steelhead are a late-run winter steelhead. Hatchery fish are widespread throughout the region. Both summer steelhead and early-run winter steelhead have been introduced to the basin and escape to spawn naturally in substantial numbers. Winter steelhead are in steep decline after exhibiting wildly fluctuating abundance. Recent average adult abundance has been estimated at 3,000 fish. Natural fish adult returns in 1995 were the lowest in 30 years. Declines have been recorded in almost all natural populations. Natural steelhead integrity is at risk from introduced summer steelhead.

Upstream spawning migration of winter steelhead begins in March and April, and peak spawning occurs from April through June. Adult steelhead use the South Fork of the Yamhill River as a migratory corridor and spawn in the upper reaches. Parr emerge from the gravel in late spring/early summer, rear in the stream for one or two years, and outmigrate during spring run-off as smolt.

UWR chinook currently are not found in the Yamhill system, however, critical habitat exists up to natural barriers. Juvenile UWR chinook may use the lower portion of the Yamhill system.

Critical habitat for UWR steelhead includes all river reaches accessible to steelhead upstream of Willamette Falls to the Calapooia River. Critical habitat for UWR chinook salmon includes the Clackamas River and the Willamette River and its tributaries above Willamette Falls. Freshwater critical habitat includes the stream, stream bottom, and riparian zone. Riparian areas include areas adjacent to a stream that provide the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of organic matter. The proposed action would occur in designated critical habitat for UWR steelhead and UWR chinook.

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of defining the biological requirements and current status of the listed species and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the ESA-listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the ESA-listed or proposed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the ESA-listed species' proposed or designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent measures available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the UWR steelhead under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses in applying ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list UWR steelhead for ESA protection and also considers new data available that is relevant to the determination (Busby et al., 1995, 1996).

The relevant biological requirements are those necessary for UWR steelhead to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

UWR chinook currently are not found in the Yamhill system, however, critical habitat still exists up to natural barriers. Juvenile UWR chinook may use the lower downstream portion of the Yamhill River system.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, spawning, holding, and rearing. The current status of the UWR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed.

1.4.2 Environmental Baseline

The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities includes the immediate watershed containing the bank stabilization, as well as those areas upstream and downstream that may be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of the South Fork of the Yamhill River, extending upstream to the edge of disturbance, and downstream to the extent of visible turbidity resulting from construction. Other reaches of South Yamhill River or the Yamhill River watershed are not expected to be directly or indirectly impacted.

The South Yamhill River is a tributary of the Yamhill River, within the Upper Willamette River basin. The project site is located adjacent to the South Yamhill River, approximately 77 kilometers (km) upstream of the confluence with the North Yamhill River. The Yamhill River basin primarily contains agricultural, rural and rural residential land uses, with several major urban concentrations. The South Yamhill River drains approximately 1995 km², and has roughly 274 perennial tributaries and 1550 km of stream miles in the basin. Geology of the South Fork Yamhill River floodplain is dominated by alluvium, which is composed of unconsolidated and poorly sorted clay, silt, sand, and gravel. Consequently, the most common soil-types are poorly drained to moderately well-drained silty clay loams and silt loams. This provides adequate availability and recruitment of spawning gravels, but streambank erosion can result in significant siltation in gravel deposits and sedimentation of benthic areas.

The South Yamhill River is a moderate gradient stream with a gravel/cobble substrate. Forestry is the dominant land use. There are no known downstream barriers to downstream fish use. Winter steelhead use the South Yamhill River for spawning and juvenile rearing.

The South Yamhill River, from its headwaters to Willamina Creek, is listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies as not meeting the bacteria criterion. The sample site was located 0.5 km downstream from the Agency Creek confluence, which is 8.0 km downstream from the project. Water quality

criteria are deficient in additional reaches of the South Yamhill River downstream of Willamina Creek. Deficient criteria include temperature, flow modification and bacteria.

Based on the best available information on the current status of UWR steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of the identified evolutionarily significant units (ESUs) within the action area are not currently being met. River basins have degraded habitat resulting from agricultural and forestry practices, water diversions, and urbanization. The following habitat indicators are either at risk, or not properly functioning within the action area: Turbidity/sediment; chemical contamination/nutrients; large woody debris; off-channel habitat; peak flows; and disturbance history. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR steelhead.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made by evaluating current aquatic conditions, the environmental baseline, and predicting the effects of the proposed actions on them. The effects were analyzed based on riprap placement, LW placement, and isolation of the work area within the project. The proximity of the highway to the South Yamhill River has reduced the habitat complexity of the stream reach by limiting stream migration within its floodplain, and preventing the development of a riparian canopy. The interface between the highway and the creek will continue to cause erosion problems in the future if no action is taken to correct it. The proposed action will cause temporary impacts to UWR steelhead and their habitat, but will provide a long-term benefit by reducing local erosion, providing large woody debris for cover, and enhancing riparian overstory cover.

The proposed action has the potential to cause the following impacts to UWR chinook and UWR steelhead and their designated critical habitat:

1. Bankline riprap and LW placement - The use of riprap has the potential to change salmonid migration and rearing behavior. Reduced densities of chinook have been found near riprap-stabilized banks that do not incorporate large woody debris (Beamer and Henderson, 1998). Because root wads are included in the riprap design for this project, these effects are expected to be minimized. Riprap and anchored trees will be placed during the ODFW in-water work window of July 1 to October 15, therefore, the likelihood of fish being present during the work is decreased. All disturbed areas would be seeded with a native seed mix, including grasses for immediate soil stabilization, and trees and shrubs for long-term establishment of riparian habitat, and the eventual contribution to large woody debris. Willow cuttings will be planted throughout the riprap. Riprap will be placed, rather than dumped, and a geotextile fabric will be used before the placement of riprap to help minimize erosion.

The track hoe used for riprap placement will be working from the top of bank. A toe trench will be excavated in the stream, and large riprap placed in the trench. These activities have the potential to directly harass, harm, wound or kill juvenile steelhead rearing at the site. However, by working during the low-flow time of year, the impact is decreased because less work is occurring in the wetted channel. Isolating the work area and removal of the fish by an experienced fishery biologist will minimize the potential for lethal take.

The riprap placed along the streambank of South Yamhill River reduces the potential quality of riparian habitat available. Herbaceous growth at the site will be reduced, as will habitat complexity. The riprap bank will reduce foraging and holding opportunities when compared to a properly functioning streambank. This impact will be reduced by staggering the toe of the boulders to create flow refuges; placing LW with root wads in the riprap; and planting vegetation among the boulders to increase shade and organic inputs. The irregular toe trench and the LW will add complexity to the reach, thus creating low velocity areas for steelhead and providing cover. Trees and shrubs will shade the stream during warm summer months, and increase the organic input to the stream. Until the willows grow and provide some shade, there could be a potential increase in temperature due to solar radiation heating the rock in the riprap. However, as the willows grow, this effect will be minimized and will eventually result in cooler temperatures.

Excavation to anchor the tree stems, and the in-water work needed to dig the toe trench and place the riprap has the potential to increase turbidity in the creek. Excavation of the toe trench will be isolated from the flowing channel, however, localized increases of erosion/turbidity during work area isolation and restoring stream flow would likely displace UWR steelhead in the project area and disrupt normal behavior. These effects are expected to be temporary and localized. Erosion control measures will be installed before construction to minimize any potential for sediment entering the waterway during construction. All sediment containment devices and erosion control devices will be inspected daily during the construction, operation and removal periods, to ensure that the devices are functioning properly. All disturbed areas will be seeded and mulched to prevent erosion. Due to the proximity of the equipment to the wetted channel, there is potential for chemical contamination to occur. Therefore, all equipment operating to construct the repair will have absorbent covers installed to prevent leakage of oil-based compounds into the river. ODOT maintenance will maintain the absorbent material sufficient to immobilize any spilled material. All equipment used for in-channel work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with mud and dirt.

The LW will have hydraulic effects on the channel. These effects include velocity breaks, potential scour and movement of the center of stream, which should provide benefits by creating a thalweg and rearing habitat. The rootwads will provide stability,

cover, and resting and rearing areas for ESA-listed species, thus providing a benefit to offset the long-term impacts of riprap.

2. Work area isolation - Dewatering the project area has the potential to cause lethal and non-lethal impacts. Because of high water temperatures and lack of flow in the stream, almost no fish migration would occur during the proposed construction timeframe. The estimated number of UWR steelhead expected to be in the project area during construction is very low, due to flows and temperatures. Isolation of the channel would have direct effects to ESA-listed fish during the fish removal and relocation process. Direct harm to fish species may occur during removal and construction activities. The probability of harm is less likely because these activities would be conducted during the ODFW defined in-water work period, when few fish, if any, are likely to be present. During bank stabilization activities, passage would be blocked by the diversion, and fish would be removed from the work area and relocated to an area downstream with adequate cover and water quality. Upstream fish passage will be prohibited during construction, but downstream passage will be maintained. This work will be completed prior to any upstream migration of adults. Containment of the work area and water diversion measures would prevent construction-related debris, chemicals, and excessive turbidity from contaminating the water. Short-term increases in sediment are expected during and immediately after construction, however no long-term changes in existing sediment levels are expected.

Project activities will increase turbidity in the stream. Juvenile steelhead are visual predators, and low water clarity decreases foraging success. If steelhead are present, the increased turbidity will decrease feeding activity, and likely displace the fish from the project area. Erosion control measures implemented as part of the proposed action are intended to minimize these turbidity increases.

3. Instream LW placement and plantings - To minimize potential impacts from instream work, the 3-5 pieces of large wood will be placed in the channel from the road surface. Placement of the LW in the channel may cause small temporary plumes of turbidity. There could be hydraulic changes depending on how this placement will occur. An ODOT or ODFW biologist will be on site to make sure the LW is placed to provide maximum benefit to fish and the habitat.

The willow cuttings will be placed into the interstitial spaces between the rocks in the riprap. Willow cuttings will also be staked on the opposite side of the road adjacent to an off-channel rearing area, and over time, these willows will provide bank stability, some shade, and a potential food source for listed species.

NOAA Fisheries expects that the proposed actions are likely to create beneficial habitat conditions over the long term, based on the current condition of the site. There would be some hydraulic effects within the channel, however, the addition of LWD in the riprap

and in the channel will provide cover for rearing and migration, and offset some of the impacts of the riprap.

In the short term, a temporary increase in sediment, entrainment, turbidity, and temperature will occur, and UWR steelhead may be killed or stressed during the fish removal process in the South Yamhill River.

1.5.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the ESA-listed species. Essential features for designated critical habitat include: Substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for UWR steelhead and UWR chinook consists of all waterways below naturally-impassable barriers, thus including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions will affect critical habitat. In the short term, a temporary increase of sediments and turbidity, and disturbance of riparian habitat is expected. In the long term, a slow recovery process will occur as the plants mature, and habitat complexity will be increased at the site by the addition of LW. NOAA Fisheries does not expect that these actions will diminish the value of the habitat for survival of UWR steelhead and UWR chinook.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the streambed and streambank of the South Yamhill River, extending upstream to the edge of disturbance, and downstream to the extent of visible turbidity. A wide variety of actions occur within the Yamhill River Basin and the Upper Willamette River watershed, where the action area is located. NOAA Fisheries is not aware of any significant change in such non-federal activities that are reasonably certain to occur. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years. Future ODOT transportation projects are planned in the Upper Willamette River watershed. Each of these projects will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

After reviewing the current status of UWR steelhead and UWR chinook, the environmental baseline for the action area, the effects of the proposed South Yamhill River bank stabilization repair project and its cumulative effects, it is NOAA Fisheries' opinion that this project, as

proposed, is not likely to jeopardize the continued existence of the UWR steelhead and UWR chinook, and is not likely to destroy or adversely modify designated critical habitat. This conclusion is based on findings that the proposed action: (1) Will use soil stabilization, LW, and revegetation techniques to restore the slope after placement of the riprap, thereby improving the current on-site habitat; (2) in-water work impacts will not result in long-term habitat effects and; (3) will involve minimal numbers of UWR steelhead and UWR chinook. Thus, the proposed action is not expected to impair properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU level.

1.7 Reinitiation of Consultation

This concludes formal consultation on the South Yamhill River bank stabilization repair project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained, or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect ESA-listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the ESA-listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation. A federal court has vacated the rule designating critical habitat for the ESUs considered in this Opinion, however, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR steelhead and UWR chinook¹ because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during the excavation of the toe trench and placement of riprap (lethal and non-lethal). Direct incidental take will occur during the handling of UWR steelhead and UWR chinook while isolating the work area from the active channel, and removing the species from the area to be de-watered. There is also the potential for harm because of significant habitat modification. Effects of actions such as these are largely unquantifiable in the short-term, and are not expected to be measurable as long-term effects on UWR steelhead or UWR chinook salmon habitat or population levels. Therefore, even though NOAA Fisheries expects some low-level incidental take to occur due to the proposed actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable."

In addition, NOAA Fisheries expects the possibility exists that the handling of UWR steelhead during the work isolation process will result in incidental take to individuals during the construction period. NOAA Fisheries anticipates that incidental take of up to 50 juvenile UWR steelhead could occur as a result of the work isolation process due to de-watering of the channel and fish removal (47 non-lethal and 3 lethal). Based on the information in the BR, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to the streambed and streambank of the South Yamhill River, extending upstream to the edge of disturbance, and downstream to the extent of visible turbidity resulting from construction activities.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to require adherence to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

¹UWR chinook are not expected to be in the action area.

The South Yamhill River bank stabilization project includes a set of conservation measures designed to minimize take of ESA-listed species. These conservation measures are described on page 7 of the BR for this project, dated February 12, 2002. Specific BMPs for in-water and bank work, clearing and grubbing, LW placement, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are included. NOAA Fisheries regards these conservation measures as integral components of the project and considers them part of the proposed action. NOAA Fisheries concludes that the proposed project carried out consistently with the conservation measures and the reasonable and prudent measures (RPMs) below does not require further consultation. However, if the action is carried out differently than is specified in the conservation measures and RPMs, further consultation will be required.

NOAA Fisheries believes that the following RPMs are necessary and appropriate to minimize the likelihood of take of ESA-listed fish resulting from implementation of this Opinion. The following RPMs will also minimize adverse effects to designated critical habitat:

1. Minimize the likelihood of incidental take resulting from in-water work by timing the completion as necessary to avoid harming vulnerable salmon life stages, including spawning, migration and rearing.
2. Ensure that the in-water work area (toe trench, riprap, and LW placement) is isolated from flowing water.
3. Ensure effectiveness of implementation of the RPMs through monitoring and evaluation both during and following construction.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the COE must comply with the following terms and conditions which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water timing), the COE shall ensure that:
 - a. All work within the active channel that could potentially contribute sediment or toxicants to downstream fish-bearing systems will be completed within the ODFW-approved in-water work period.²
 - b. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream, but below the ordinary high water mark must be approved, in writing, by NOAA Fisheries.
2. To implement Reasonable and Prudent Measure #2 (isolation of in-water work area), the COE shall ensure that:

² Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

- a. During toe trench excavation and the placement of riprap, the work area is well-isolated from the active flowing stream within a coffer dam (constructed of sandbags, sheet pilings, inflatable bags, turbidity curtain, *etc.*), or a similar structure in order to minimize the potential for sediment entrainment.
- b. If the fish-salvaging aspect of this action requires the use of seine equipment to capture fish, it must be accomplished as follows:
 - i. Before and intermittently during pumping, attempts shall be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
 - ii. Seining will be conducted by, or under the supervision of an ODFW biologist or their designated representative with experience in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
 - iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
 - iv. Seined fish must be released as near as possible to capture sites.
 - v. If a dead, injured, or sick listed species specimen is found, initial notification must be made to:

National Marine Fisheries Service Law Enforcement Office
Vancouver Field Office
600 Maritime, Suite 130
Vancouver, WA 98661
360.418.4246

Care should be taken in handling sick or injured specimens to ensure effective treatment and care. Dead specimens should be handled to preserve biological material in the best possible state for later analysis of cause of death. With the care of sick or injured listed species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.
 - vi. The COE shall ensure that the transfer of any ESA-listed fish to third parties other than NOAA Fisheries personnel will require written approval from NOAA Fisheries.
 - vii. The COE shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained prior to project seining activity.
 - viii. ODOT must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow said representative to inspect the seining records and facilities.

- ix. A description of any seine and release effort will be included in a post-project report, which shall include the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.
- c. If the fish-salvaging aspect of this project requires use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 1998):
 - i. Electrofishing may not occur near listed adults in spawning condition, or near redds containing eggs.
 - ii. Equipment must be in good working condition. Operators must go through the manufacturer's pre-season checks, follow all provisions, and record major maintenance work in a log.
 - iii. A crew leader (ODFW or their designated representative), having at least 100 hours of electrofishing experience in the field, using similar equipment, must train the crew. The crew leader's experience must be documented and available for confirmation, such as a logbook. The training must occur before an inexperienced crew begins any electrofishing, and it must be conducted in waters that do not contain ESA-listed fish.
 - iv. Measure conductivity, and set voltage as follows:

<u>Conductivity (umhos/cm)</u>	<u>Voltage</u>
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

- v. Direct current (DC) must be used at all times.
- vi. Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us, and do not exceed five milliseconds. Pulse rate should start at 30Hz, and work carefully upwards. *In general*, pulse rate should not exceed 40Hz, to avoid unnecessary injury to the fish.
- vii. The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated, because in such areas, the fish are more likely to come into close contact with the anode.
- viii. The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
- ix. Crew members must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the

- electrofishing unit may need adjusting. Sampling must be terminated if injuries occur, or abnormally long recovery times persist.
- x. Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.
 - xi. The electrofishing settings must be recorded in a logbook, along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and for the basis for training new operators.
- d. Placement of LW in the channel should be done in a way that will minimize impacts to existing habitat:
- i. The pieces of LW should be at least 1.5 times the active channel width.
 - ii. Disturbance of streambanks and stream substrate is minimized when lowering logs into final position, and in wedging them into place.
 - iii. If riparian shrubs and grasses are disturbed to the extent that streambank erosion is likely, all disturbed areas resulting from positioning and placement of the logs at the project site are revegetated with native grasses, shrubs, and trees, where soils are appropriate for a reasonable expectation of success of the plantings.
 - iv. Log placement does not inhibit passage of adult or juvenile UWR steelhead.
 - v. Log placement should not occur in gravel locations that have potential for spawning.
3. To implement Reasonable and Prudent Measure #3 (monitoring and reporting), the COE shall ensure that:
- a. Within 120 days of completing the project, the COE shall ensure submittal of a monitoring report to NOAA Fisheries describing the COE's success in meeting their permit conditions. This report will consist of the following information:
 - i. Project Identification.
 - (1) Project name,
 - (2) Starting and ending dates of work completed for this project,
 - (3) COE contact person.
 - ii. Isolation of In-Water Work Area. All projects involving isolation of in-water work areas must include a report of any seine and release activity, including:
 - (1) The name and address of the supervisory fish biologist,
 - (2) Methods used to isolate the work area and minimize disturbances to fish species,
 - (3) Stream conditions prior to, and following placement and removal of barriers,
 - (4) The means of fish removal,
 - (5) The number of fish removed, by species,
 - (6) The location and condition of all fish released, and
 - (7) Any incidence of observed injury or mortality.

- iii. Pollution and Erosion Control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
- iv. Site Restoration. Documentation of the following conditions:
 - (1) Finished grade slopes and elevations,
 - (2) Log and rock structure elevations, orientations, and anchoring, if any.
- v. Photographic Documentation of Environmental Conditions at the Project Site Before, During and After Project Completion.
 - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction views.
 - (2) Each photograph will be labeled with the time, date, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
 - (3) Relevant habitat conditions include: Characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, as well as upstream and downstream of the project.
- vi. Monitoring. On an annual basis, for five years after completion of the project, the COE shall ensure submittal of a monitoring report to NOAA Fisheries, describing the COE's success in meeting their habitat restoration goals of the riparian plantings. This report will consist of the following information:
 - (1) Project information.
 - (a) The project name,
 - (b) Starting and ending dates of work completed for this project, and
 - (c) The COE contact person.
 - (2) Riparian restoration. Documentation of the following conditions:
 - (a) Any changes in planting composition and density, and
 - (b) A plan to inspect and, if necessary, replace failed plantings and structures.
 - (3) Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching, and fertilizing, will be done in the following manner:
 - (a) Disturbed areas will be planted with native vegetation specific to the project vicinity, or the region of the state where the project is located, and will comprise of a diverse assemblage of woody and herbaceous species,
 - (b) No herbicide application will occur as part of this permitted action, however, mechanical removal of undesired vegetation and root nodes is permitted,

- (c) No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action, and
- (d) Plantings will achieve an 80 percent survival success after five years.
 - (i) If success standard has not been achieved after five years, the applicant will submit an alternative plan to the COE and NOAA Fisheries. The alternative plan will address temporal loss of function.
 - (ii) Plant establishment monitoring will continue, and monitoring reports will be submitted to the COE and NOAA Fisheries on an annual basis until site restoration success has been achieved.

3. ESSENTIAL FISH HABITAT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed actions may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or other wise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA § 3). For the purpose of interpreting the definition of EFH: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle (50 CFR 600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years)(PFMC 1999).

Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in Part 1.2. The "action area" for this consultation includes the streambed and streambank of South Yamhill River bank within the area of disturbance at the project site and downstream to the extent of visible short-term turbidity increases resulting from the project work. This area has been designated as EFH for chinook salmon and coho salmon.

3.5 Effects of Proposed Action

Spring chinook salmon spawn downstream of the project site, but due to the lack of spawning habitat in South Fork of the Yamhill River, primarily use it for rearing as juveniles. NOAA Fisheries believes the implementation of the bank stabilization project is likely to adversely affect EFH for chinook salmon and coho salmon. Coho salmon are present in the South Fork of the Yamhill River, however they are of hatchery origin. Information submitted by the COE in its request for consultation and additional information provided by ODFW is sufficient for NOAA Fisheries to conclude that the effects of the proposed action are transient, local, and of low intensity and are not likely to adversely EFH in the long term. NOAA Fisheries also believes that the conservation measures proposed as an integral part of the action would avoid, minimize, or otherwise offset potential adverse impacts to designated EFH.

3.6 Conclusion

NOAA Fisheries believes that implementation of the bank stabilization project in the South Fork of the Yamhill River is likely to adversely affect designated EFH for chinook salmon and coho salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. Terms and conditions outlined in section 2.3 are generally applicable to designated EFH for coho and chinook salmon, and address these adverse effects. Consequently, NOAA Fisheries recommends that they be adopted as EFH conservation measures.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH recommendations, the response must explain the reasons for not following the recommendations, including the

scientific justification for, and disagreements over the anticipated effects and measures to address them.

3.9 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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